

IN THE ABSTRACT:

Please replace the abstract, with the following rewritten abstract:

The present invention relates to an apparatus and methods that proactively ensures alignment (parallelism) of the connectors on the circuit board during the solder assembly of the connectors to the circuit board. The apparatus and methods includes an alignment fixture that has been specifically designed to ensure parallelism of straddle-mounted connectors during the solder reflow assembly process. The fixture has connector slots and a circuit board slot. The slots help to detect whether the connectors meet the X- and Y-axis alignment requirements after the insertion process (after the connectors have been placed onto the circuit board). That is, if the X- and Y-axis alignment specifications are met, the circuit board with its attached connectors can be completely fitted into the slots of the alignment fixture. The fixture also contains a claw to control unintended connector displacements in the Z-axis, which may be caused by a circuit board warping under high temperature during the reflow process (the process to solder the connectors onto the circuit board). Thus, this apparatus provides a proactive approach for ensuring connectors alignment to the circuit board and reduces yield loss (and the number of reactive circuit board inspections); as a result, manufacturing costs are reduced.